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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/609,142	06/26/2003	Roman Zaikin	706-A01-054	6724

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EXAMINER
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HANNAHER, CONSTANTINE

ART UNIT	PAPER NUMBER
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2878

DATE MAILED: 05/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/609,142

Applicant(s)

ZAIKIN ET AL.

Examiner

Constantine Hannaher

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

## **DETAILED ACTION**

### **Drawings**

1. The drawings were received on November 12, 2003. These drawings are acceptable.

### **Specification**

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract is too long.

### **Claim Objections**

3. Claim 19 is objected to because of the following informalities: the "first controller" must refer to the controller mounted on the module interface of claim 12, as there is no other controller established. Appropriate correction is required.
4. Claims 26 and 27 are objected to because of the following informalities: periods may appear within a claim only after abbreviations. Appropriate correction is required.

### **Claim Rejections - 35 USC § 112**

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-11, 20, 24, 25, and 27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to independent claims 1 and 24, each establishes “a serial [data] connection between the module interface and the computer interface” (or boards therefor) twice. In view of the indefinite article “a” and the single connection **15** illustrated, it is not clear whether the same connection is meant, or another connection specifically for “receiving the serialized digital data signals output by the first” controller or PFGA.

Claim 20 recites the limitation “the second controller” in line 2. There is insufficient antecedent basis for this limitation in the claim. It is manifestly clear that claim 12 deliberately does not establish more than one controller since its scope does not extend past the connection to a serial line.

Claim 27 recites the limitation “steps a. and b.” in line 1. There is insufficient antecedent basis for this limitation in the claim. Claim 26 plainly establishes steps h. through n.

The balance of the claims is rejected on the basis of their dependence.

#### **Claim Rejections - 35 USC § 102**

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

8. Claims 12-17, 21-23, and 26-28 are rejected under 35 U.S.C. 102(a) as being clearly anticipated by Choong *et al.* (2002).

With respect to independent claim 12, Choong *et al.* discloses a gamma camera (Fig. 2a) for use in a gamma camera system with a small field of view (Fig. 2b, area is 9.6 cm square, page 2229) comprising a plurality of modules and a support as recited (Fig. 2a), a module interface as recited (Fig. 3a, see also section II.B for second detection logic and section III.A for first detection logic), and an analog to digital converter and a controller as recited (Fig. 3a). See page 2231 for the intended use to serially communicate between the module interface and the computer using the computer's internal bus (acquisition card).

With respect to dependent claim 13, the second detection logic of the gamma camera of Choong *et al.* includes a circuit of the recited type (section II.B, follow footnote [18] to the exact reference cited in the specification).

With respect to dependent claim 14, the gamma camera of Choong *et al.* includes a circuit of the recited type (section II.B).

With respect to dependent claim 15, the second detection logic in the gamma camera of Choong *et al.* includes a programmable non-volatile memory (page 2230).

With respect to dependent claim 16, the first detection logic of the gamma camera of Choong *et al.* includes a circuit of the recited type (section III.A, follow footnote [18] to the exact reference cited in the specification).

With respect to dependent claim 17, the gamma camera of Choong *et al.* includes a circuit of the recited type (section III.A).

With respect to dependent claim 21, it is a true statement that four modules in the gamma camera of Choong *et al.* are arranged in a 2×2 array (Fig. 2a) and that each module provides an 8×8 array (64 pixels).

With respect to dependent claim 22, the dimensions of each module and the composition of the scintillator crystals and the dimensions of each scintillator crystal are about as recited (since  $8 \times 3\text{mm}$  is about  $20\text{mm}$ , page 2229, the discrete pixels are of CsI(Tl), page 2228, and the edge pixels at 70% of the area would have dimensions of  $3\text{mm} \times 2.1\text{mm}$ , page 2229, so crystals of about  $2.25\text{mm}$  square are included). See also page 2234.

With respect to dependent claim 23, the module in the gamma camera of Choong *et al.* includes  $8 \times 8$  (64) silicon PIN photodiodes (page 2228).

With respect to independent claim 26, Choong *et al.* discloses a method of imaging corresponding to the illustrated camera which would comprise the steps of detecting (Fig. 2b), amplifying and determining (Fig. 3a, see also section II.B, page 2229), sending (Fig. 3a, see also section III.A, page 2230), reading (page 2230, bottom of first column), converting (page 2230, middle of second column), and sending (page 2231 and Fig. 2b, as the PC laptop described by Choong *et al.* necessarily has a memory and input bus of the recited type).

With respect to dependent claim 27, as best understood, the determination (of step i) in the method of Choong *et al.* and the selecting (of step j) in the method of Choong *et al.* are performed therein by a structure of the recited type (follow footnote [18] to the exact reference cited in the specification).

With respect to dependent claim 28, the input bus of the acquisition computer (PC laptop) used in the method of Choong *et al.* is necessarily a PCI bus because Cardbus (universally present as an expansion technology in PC laptop systems at the time of disclosure) is an implementation of PCI for laptops.

**Claim Rejections - 35 USC § 103**

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Choong *et al.* (2002).

With respect to dependent claims 18 and 19, and dependent claim 20 as best understood, it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the controllers within the scope of the disclosure of the gamma camera of Choong *et al.* using any relevant technology to implement the desired signal processing. If Fig. 3b does not already disclose programmable logic devices or a microcontroller, their use would have been obvious in view of such concerns as reducing the size of the readout motherboard and the like.

12. Claims 1-11, 24, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Choong *et al.* (2002) in view of Peck *et al.* (US 20030036875A1).

With respect to independent claim 1, Choong *et al.* discloses a gamma camera system having a small field of view (Fig. 2b, area is 9.6 cm square, page 2229) comprising a plurality of modules and a support as recited (Fig. 2a), a module interface as recited (Fig. 3a, see also section II.B for second detection logic and section III.A for first detection logic), a computer interface and serial data connection as recited (section III.A, page 2231), an analog to digital converter and a first controller as recited (Fig. 3a). Choong *et al.* does not explicitly describe the acquisition card as having a second controller or a microprocessor with memory. It would have been obvious to one of ordinary skill in the art at the time the invention was made to supply the data acquisition board in the computer of Choong *et al.* with appropriate elements such as a controller, microprocessor, and memory in view of the general purpose board running LabVIEW (page 2231) since this software program is typically employed with data acquisition boards having the recited items (see Fig. 4A of Peck *et al.* for a typical computer interface of the recited type used in data acquisition, paragraph [0119], with the graphical program development environment LabVIEW, paragraph [0096]) affording flexibility in addressing different imaging applications.

With respect to dependent claim 2, the second detection logic of the gamma camera system of Choong *et al.* includes a circuit of the recited type (section II.B, follow footnote [18] to the exact reference cited in the specification).

With respect to dependent claim 3, the gamma camera system of Choong *et al.* includes a circuit of the recited type (section II.B).

With respect to dependent claim 4, the second detection logic in the gamma camera system of Choong *et al.* includes a programmable non-volatile memory (page 2230).



With respect to dependent claim 5, the first detection logic of the gamma camera system of Choong *et al.* includes a circuit of the recited type (section III.A, follow footnote [18] to the exact reference cited in the specification).

With respect to dependent claim 6, the gamma camera system of Choong *et al.* includes a circuit of the recited type (section III.A).

With respect to dependent claims 7-9, it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the controllers within the scope of the disclosure of the gamma camera system of Choong *et al.* and data acquisition board of Peck *et al.* using any relevant technology to implement the desired signal processing. If Fig. 3b of Choong *et al.* does not already disclose programmable logic devices or a microcontroller, their use would have been obvious in view of such concerns as reducing the size of the readout motherboard and the like.

With respect to dependent claim 10, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a high voltage power supply on the computer interface in the gamma camera system suggested by Choong *et al.* and Peck *et al.* in view of the need to supply the photodiode bias voltage (Fig. 3b of Choong *et al.*).

With respect to dependent claim 11, the input bus of the acquisition computer (PC laptop) used in the method of Choong *et al.* is necessarily a PCI bus because Cardbus (universally present as an expansion technology in PC laptop systems at the time of disclosure) is an implementation of PCI for laptops.

With respect to independent claim 24, see the explanation of the rejection against claims 1, 2, and 5. Peck *et al.* shows that programmable field gate arrays are routinely used in measurement systems incorporating a data acquisition board operating under LabVIEW. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to specify

that the readout motherboard and the data acquisition board used programmable field gate arrays under the direction of the LabVIEW already running on the computer (page 2231 of Choong *et al.*) in view of the flexibility of operation and ease of programming.

With respect to dependent claim 25, an EEPOT ( $E^2Pot$ ) is mounted on the module support board (readout motherboard) controlling the module (supplying bias currents and timing signals) in the gamma camera system of Choong *et al.* (page 2230).

### Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The other publications are either referenced in the footnotes of Choong *et al.* or relate to same technology.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Constantine Hannaher whose telephone number is (571) 272-2437. The examiner can normally be reached on Monday-Friday with flexible hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Constantine Hannaher  
Primary Examiner